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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,550	08/23/2001	Kazumasa Hasegawa	110450	8987

25944 7590 11/13/2002

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EXAMINER
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LE, DUNG ANH

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 11/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/934,550

Applicant(s)

HASEGAWA ET AL.

Examiner

DUNG A LE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 24-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 9, 12, 19, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 4-8, 10, 11, 13-18, 20, 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

DETAILED ACTION

**Priority**

Acknowledge is made of applicants' claim for foreign priority base on an application 2000-281725 filed in Japan on 9/18/2000.

It is noted that Applicants have filled a certified copy of said application as required by U.S.C 119, which papers have been placed of record in the file.

***Election/Restriction***

Applicant's election with traverse of claims 1- 23 in Paper No. 11 is acknowledged.

Because Applicant did not distinctly and specifically point out the supposed error in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants have the right to file a divisional, continuation or continuation-in-part application covering the subject matter of the non-elected claims.

The traversal is on the ground(s) that see the election paper. This is not found persuasive because the fields of search for method' and device claims are NOT coextensive and the determinations of patentability of method and device claims are different, that is process limitations and device limitations are given weight differently in determining the patentability of the claimed inventions. Also, the strategies for doing

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text searching of the device claims and method claims are different. Thus, separate searches are required.

The requirement is still deemed proper and is therefore made **FINAL**.

### **Information Disclosure Statement**

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 3/4/2002 and made of record as Paper No.9 . The references cited on the PTOL 1449 form have been considered.

### **Specification**

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The specification is objected to for the following reason:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP § 606.01).

A title such as --FERROELECTRIC MEMORY DEVICE-- is suggested.

Note that, the claims are directed to semiconductor device instead of to a method of making a semiconductor device.

**Claim Rejections**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-3, 9, 19, 21 and 22 are rejected under 35 USC 102 (b) as being anticipated by Nagasaki et al. (5060191/IDS).**

Nagasaki et al. disclose a ferroelectric memory device comprising:  
a memory cell array in which memory cells (fig. 1) are arranged in a matrix, the memory cell array including first signal electrodes 4, second signal electrodes arranged in a direction intersecting the first signal electrodes 5, and a ferroelectric layer 3 disposed at least in intersection regions between the first signal electrodes 4 and the second signal electrodes 5; and a peripheral circuit section for selectively writing information (6,8) into or reading information (7,9) from the memory cell, wherein the memory cell array and the peripheral circuit section are disposed in different layers, and wherein the peripheral circuit section is formed in a region outside the memory cell array (fig.1) .

**Regarding claim 2**, wherein the ferroelectric layer 3 is disposed linearly along the first signal electrodes 4 or the second signal electrodes 5 (fig. 1).

**Regarding claim 3**, the ferroelectric layer is selectively disposed over the first signal electrodes 4.

**Regarding claim 9**, the ferroelectric layer 3 is selectively disposed under the second signal electrodes 5.

**Regarding claim 19**, an insulating base 2, wherein the memory cell array comprises the first signal electrodes 4 provided in grooves formed in the insulating base 2, the ferroelectric layer 3, and the second signal electrodes 5, and wherein the ferroelectric layer and the second signal electrodes are layered over the insulating base in which the first signal electrodes are formed (fig. 1).

**Regarding claim 21**. A ferroelectric memory device comprising a plurality of unit blocks of the ferroelectric memory device as defined in claim 1 arranged in a given pattern (fig. 1).

**Regarding claim 22**, a plurality of memory cell arrays 4/5, wherein the plurality of memory cell arrays is layered (fig. 1).

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 12 is rejected under 35 U.S.C. 103 (a) as being unpatentable over  
Nagasaki et al. (5060191/IDS) in view of Johnson et al. (6351406).**

Nagasaki et al. disclose the claimed invention except for the ferroelectric layer is disposed only in the intersection regions between the first signal electrodes and the second signal electrodes. However, Johnson et al. teach the dielectric electric layer (fig. 4b, col 9, lines 1-5) is disposed only in the intersection regions between the first signal electrodes and the second signal electrodes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the ferroelectric layer is disposed only in the intersection regions between the first signal electrodes and the second signal electrodes, as taught by Johnson et al. in order to obtain the best resultant memory devices.

#### **Reasons for Indication of Allowable Subject Matter**

**Claims 4- 8, 10- 11, 13- 18, 20 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, since the prior made**

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of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Nagasaki et al. (5060191/IDS) and Johnson et al. (6351406), taken individually or in combination, do not teach the claimed invention having the memory cells are disposed over a base, and a dielectric layer is provided between laminates formed of the first signal electrodes and the ferroelectric layer so as to cover exposed areas of the base (Regarding claims 4, 10, 13); the dielectric layer is formed of a material having a dielectric constant lower than a dielectric constant of the ferroelectric layer (Regarding claim 11); the first signal electrodes are disposed at a bottom of the depressed sections and on the upper surface of the projected sections, and wherein the ferroelectric layer and the second signal electrodes are stacked over the insulating base over which the first signal electrodes are formed (Regarding claim 20) and insulation layers are provided between the first signal electrodes, and wherein upper surfaces of the first signal electrodes are on the same level as upper surfaces of the insulation layers (Regarding claim 23)

If Applicants are aware of better art than that which has been cited, they are required to call such to attention of the examiner.

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When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.


A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is 703-306-5797. The examiner can normally be reached on Monday-Friday 8:00am-5: 30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Dung A. Le   
Examiner  
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